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Your reference Barcode Check (UK)

0228955.1

**The  
Patent  
Office****Request for grant of a  
Patent****Form 1/77****Patents Act 1977****1 Title of invention****Document with user authentication****2. Applicant's details**

First or only applicant

**2a**

If applying as a corporate body: Corporate Name

**EnSeal Systems Limited**

Country

**GB****2b**If applying as an individual or partnership  
Surname

Forenames

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2d	Corporate Name
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	ADP Number
3	Address for service
Agent's Name	Origin Limited
Agent's Address	52 Muswell Hill Road London
Agent's postcode	N10 3JR
Agent's ADP Number	603274 727045700Z

**4 Reference Number**

Barcode Check (UK)

**5 Claiming an earlier application date**

An earlier filing date is claimed:

Yes ☐No ☒Number of earlier  
application or patent number

Filing date

15 (4) (Divisional)

8(3)

12(6)

37(4)

☐☐☐☐**6 Declaration of priority**

Country of filing

Priority Application Number

Filing Date

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## 7 Inventorship

The applicant(s) are the sole inventors/joint inventors

Yes ☐No ☒

## 8 Checklist

Continuation sheets 0

Claims 1 ✓

Description 4 ✓

Abstract 0

Drawings 0 *DML*Priority Documents ~~Yes~~ NoTranslations of Priority Documents ~~Yes~~ NoPatents Form 7/77 ~~Yes~~ NoPatents Form 9/77 ~~Yes~~ NoPatents Form 10/77 ~~Yes~~ No

## 9 Request

We request the grant of a patent on the basis  
of this application

Signed:

*Origin Limited*  
(Origin Limited)

Date: 12 December 2002

**DUPLICATE**

1

**DOCUMENT WITH USER AUTHENTICATION****Field of the invention**

- 5 This invention relates to a document with user authentication. A document is any item which carries information. An example would be a cheque (i.e. a bill of exchange drawn on a bank by a holder of an account at that bank) made payable to a given user or payee, in which the cheque includes supplemental payee authentication data.

10 **Background**

Cheque fraud is an increasing threat to the operation of the banking systems in many countries.

- 15 A large amount of fraud takes place by falsification of payee and amount on cheques, frequently by means of "cheque washing" carried out by using a solvent on the original printed characters. This invention is concerned with cheques that are fraudulently acquired and cashed at remote outlets such as cheque cashing agencies. Here the concern is with the means of identifying the person who presents the cheque, i.e. is the payee named on the
- 20 cheque the same person who is representing himself as the payee at the cheque cashing agency. According to one authority, "Experience in the banking industry finds that aggressively checking identification would reduce bank fraud losses in large banks by 40%"

- Currently identity is frequently established by the use of drivers' licences, social security cards
- 25 or other documentary means. But if person X has had a cheque made payable to him stolen, then it is possible that fraudulent person Y will 'wash' off name X printed on the cheque and replace it with his own. Fraudulent payee Y can then cash the cheque, using his valid drivers license as identification. Fraudulent person Y may not even bother to change the payee name, but instead rely on not being asked to authenticate himself or in having some false
- 30 identity document in the name of person X.

The reliable establishment of identity has become a more prominent issue with the recent anxiety over terrorism, and research into more effective means is ongoing. Biometric techniques have been refined, moving beyond the long established fingerprint recognition through to methods such as iris recognition (techniques being pursued by the Federal  
5 Aviation Authority (FAA) for instance.) Biometric identification parameters have been encoded onto identity cards in various forms including the use of machine readable chips.

#### Summary of an implementation of the Invention

10 In one implementation, this invention is concerned with enhancing the security of cheque cashing operations at offline agencies by printing an encoded form of personal identification onto cheques.

The invention here described aims to capitalise on the various forms of documentary  
15 identification by encoding onto cheques data that relates to an identification document. This data may be a driver's licence number, the social security number (SSN) or some data referring to a biometric measurement that appears on the identification document. This enables identification to be made at outlets which do not have online access to further information, particularly since many identification documents contain secured images of the  
20 relevant person and this gives rise to greater confidence in their authenticity. Identification of a customer is achieved by a sales person simply scanning in the customer's cheque using normal bar code scanning point of sale equipment; that equipment then decodes and displays (on the cash register display) the identification data, which the sales person can then easily compare with the identification data printed on an identification document presented  
25 by the customer to the sales person. Ideally, the identification document should include an identity photograph so that the sales person can check that the identification document itself appears to be owned by the person presenting it.

To encode the identification data, the cheque itself can be printed with a conventional 1 or  
30 2D barcode or more sophisticated symbologies, such as those available from Enseal Systems Limited and disclosed in PCT/GB02/00539. In this way, a fraudulent person presenting the

cheque for payment cannot simply replace the true payee's name with his own and present his own drivers license etc. as proof of identity, since the encoded drivers license data on the cheque will not match that from the fraudulent payee's actual license.

- 5 In effect the cheque has encoded onto it a reference to a more complicated set of data relating to an individual, where the data itself would require a far larger payload than is feasible in a simple printing process on a limited area of a cheque.

- 10 The printing of identification data is carried out in general at the same time as the printing of the customised variable data onto the cheque, using one of the range of symbologies which has been developed for ease of machine reading, in a manner that will not degrade the workflow unduly. Typically the cheque printing will be part of a large payroll operation in which the employer has data such as SSN's on a database so that the whole process is easily automated. However, the same system could be used for individual printing, as, for instance,
- 15 a doctor printing a prescription intended for a particular person where the doctor is likely to have access to various forms of personal information about that person.

- The security of the information which is printed onto the cheque need not be compromised. If, for instance, an SSN were to be used it could be transformed with a one way hash
- 20 function before being encoded. At the receiving outlet the software would calculate the same hash and compare the values without revealing what the values actually were. Hence, the person presenting a cheque for encashment would type in his SSN on a keypad at the point of sale and this would be hashed to generate the value which is compared with the value obtained when scanning the cheque. Equally the data might be combined with a date or
- 25 account number to ensure that it did not always appear in the same format. A further enhancement of security could be achieved by using the personal data as a key to some form of encryption of the personal identification data.

- The use of printing by instruments such as ordinary lasers is to be compared with systems
- 30 such as those used with ATM's where data is added to a cheque card in the form of modification of a magnetic stripe. Another important distinction with the ATM method is



that the verification of identity at ATM's is based upon a PIN number which is a function of the account number encoded onto the cheque card. The present invention concerns data added onto a cheque which has no simple functional relationship to any data contained on the cheque. There will be no means of deducing the encoded identifier from the payee name  
5 or account number without actual access to the document being used for identification.

One extension would be that a code word (e.g. dog's name, favourite drink etc) should be scrambled using a PIN and added to the ID card in machine readable form. At a point where identification takes place the person concerned types in the PIN and the code word and the  
10 software determines from a scan of the ID card whether there is a match.

The point is that a fraudster would have to try out all possible PINS and all possible code words in order to defeat the system. In effect it is using a very long PIN number where the code word would be an object that is easy to memorise. The advantage is that there would be no  
15 real way for a fraudster to know when the data was correctly unscrambled. In fact the same system could be used on the cheque using a code word scrambled by a PIN which could be a driver's licence number.

In patent US 6,646,134 (October 2002) Page describes the printing of identification data onto a cheque for the enhancement of security, but the security depends upon access to a  
20 "central processing unit" for validation, and hence is not concerned with offline verification which is an advantage of this implementation.

### Claims

- 5 1. A document with user authentication, in which the document comprises the name of the ostensible user in human readable form, together with machine readable encoded data that can be decoded to generate a unique identifier, the unique identifier also being present in a human readable form on an identification document carried by the true user of the document, such that the ostensible user of a document can be authenticated by comparing
- 10 the unique identifier obtained from the document with the unique identifier on an identification document provided by the ostensible user.
2. The document of Claim 1 in which the document is a cheque and the user is the payee named on the cheque.
- 15 3. The document of Claim 1 or 2 in which the machine readable encoded data is printed onto the document as a 1 or 2D bar code or other form of graphical symbology.
4. The document of Claim 3 in which the machine readable encoded data can be
- 20 scanned by a bar code scanner.
5. The document of Claim 1 in which the document is selected from the following list of document types:
- 25 (a) prescription for medicine;
- (b) tickets
- (c) identification document
- (d) passport
- (e) drivers license
- 30 6. The document of Claim 1 in which the machine readable encoded data is related to the unique identifier by a one way hash function.

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